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REPORT OF THE POMOLOGIST.

SIR: I have the honor to hereby present the report of the Division of Pomology, giving a synopsis of its work from its establishment until the present time. The act of Congress which created it took effect on July 1, 1886, and my appointment as chief dates from that day. As this work is new and untried, so far as the Department is concerned, except that which Mr. William Saunders, Superintendent of the Gardens and Grounds, has done voluntarily, and without the aid of an appropriation, there has been no precedent to follow or established line of action to which I might conform my labors. I cannot say less than that I feel highly honored in having been chosen to conduct this work, and its responsibilities are deeply felt by me. The fruit-growing industry of the United States, from all that we can gather by the crude and inefficient means at hand, amounts to between two and three hundred millions of dollars annually. It is estimated by several careful observers that there is at least as much more in value lost by insect depredations, by mistakes made in planting unsuitable varieties, and in ignorantly caring for the fruit-bearing trees, vines, and plants of the United States, a great share of which might be saved by our people with comparatively little outlay of means and labor if intelligently applied. To gather such information and distribute it is certainly within the legitimate province of this division, and is one of the main points towards which we hope to make progress. It is with pleasure that I have begun this work, which accords so well with my feelings and my chosen life-work, because I find the pomologists and horticulturists all over the country bidding me good cheer. Very many of the leading fruit-growers and life-long experimenters in practical pomology, as well as those of a more scientific turn, have given me much encouragement by offering their grounds and personal labors to help on the work.

The heads of the experimental departments of all the agricultural colleges visited or corresponded with, have been equally favorable and generous. The various rural papers of the country have also offered their services.

Considerable work has been done in the way of gathering specimens of fruits and making drawings and accurate descriptions of the same for future use by the Department. Many orchards, vineyards, and experimental grounds have been visited, and information gathered by myself from personal observation.

THE FUTURE OF THE DIVISION.

Now that the division has been established, it is hoped that something of permanent value for the fruit-growers of the entire country may be done, although the present appropriation will not permit the consummation or even the introduction of plans that must be carried into effect if the division shall fully serve the purpose for which it was instituted.

A system for the collection of statistics should be inaugurated by which might be learned the real facts as to the magnitude of our pomological industry—its progress and its possibilities. The production and consumption by our people of fruits, both fresh and preserved, is in value and extent scarcely less than that of the cereals; and it seems proper that similar attention be given to the collection and dissemination of information concerning fruits.

EXPORTS VERSUS IMPORTS.

The United States contains some of the largest and best-adapted fruit-producing regions of the world, and foreign markets should be investigated, with a view to the benefit of the home producer. This is especially applicable to that best of all fruits, the apple. And now that the evaporation of fruit has become so successful, it is highly important that we avail ourselves of every means to increase our exports of fruit products. Already a considerable advance has been made in the production of citrus fruits, and as this branch of our pomological industry is only in its infancy, it is hoped that we may in time be able in a great measure to avoid the necessity of importing these fruits. There are also many other fruits, such as the guava, olive, pineapple, and cocoa-nut, which need the special attention of our Government to encourage and advance their culture.

COLLECTION AND DISTRIBUTION OF VARIETIES.

Many of our choicest fruits have been found in obscure parts of this country and some in foreign countries, and no doubt there are others of equal or better qualities that remain unknown to our people because of the lack of proper investigations. All such fruits should be sought out and at once placed in the hands of the people for trial, and this work can be successfully done by this division, provided means are allowed. This would add considerably to work of this kind now being performed in a limited way by the Department and add greatly to its usefulness.

SUMMARY OF INVESTIGATIONS.

In accordance with your orders, on the 6th day of August, 1886, I proceeded from my home at Geneva, Kans., to attend the meeting of the Central Texas Horticultural Society at Fort Worth, and to visit such other places as I thought best in that State in making pomological investigations. I there found assembled a goodly number of the workers and thinkers who are interested chiefly in pomology. Although this was just at the close of a drought of exceptional severity in that State, there were shown upon the exhibition tables many fine specimens of luscious peaches, pears, plums, grapes, and berries. From the statements made by those present I learned that in Texas peaches can be eaten fresh from the tree from May to December if care is given in the selection of varieties. Indeed, the peach is one of the most popular fruits grown in that State, as it nearly always bears a good crop, and the fruit is of the very highest quality. The choicest variety grown, and the one that brings the highest price in market, is the Chinese Cling. It is very

large, of a creamy white color, often slightly blushed, and of a very sweet and delicate flavor. Of grapes there was a very fine exhibit. Judging from the specimens upon the table, from what was testified in the meeting, and from what I saw in vineyards visited in several parts of the State, it is safe to say that nearly all varieties of native American grapes and some foreign varieties do remarkably well. Rot and mildew are prevalent to some extent, but not to such a damaging degree as in many other States. This is owing to the drier condition of the atmosphere. In several vineyards the Triumph, which is a variety that usually succeeds poorly in the North, was seen bearing very large clusters in abundance. Here the Herbemont, which is too tender for the Northern States, seems to be at home. Among the plums, Kelsey's Japan is perhaps now attracting more attention in Texas than any other variety. It has been planted there in a limited way since 1885, but in only one or two cases has fruit been noticed; indeed, it could not be expected on trees so young, although it is an early bearer. In some cases, towards the northern line of the State, the trees were reported tender. Special notes upon this fruit will be found in another part of this report.

Prunus Simonii is another new variety that was well reported by all who had experience with it. I saw it growing in several portions of Texas, and for that matter in many other States, and in all cases it has proven a hardy and a thrifty grower. However, its very recent introduction has prevented the bearing of fruit so far, except in a very few cases. Perhaps the best information that can be given is to quote the words of Prof. T. V. Munson, of Denison, Tex., on whose grounds I saw the largest trees:

It fruited with me in 1885 for the first time, probably the first in the United States. The fruit when ripening shines like apples of gold, becoming a rich vermilion when fully ripe. It ripens shortly after Wild Goose, and showed no defects from attacks of curculio or rot, which were very abundant in 1885 and destroyed all my blue plums. It is very firm and meaty, equal to any blue plum I have ever eaten, and will carry any desired distance. Tree very thrifty, upright; early and an abundant bearer; hardy in Iowa, and endures Texas drought to perfection.

The Blackman Plum, which has been very generally planted for several years, has not, in any case reported, been known to bear fruit, although it has often bloomed. It is now quite well proven that it is a hybrid between the peach and plum, and, like many hybrids, is sterile. As a fruit-bearing tree it is a failure, and should not be planted by any one.

The Japan Persimmon, where it is hardy, seems to be steadily winning its way into the favor of planters. The trees are often tender when young, but when several years old will stand rather more cold than figs. In the southern part of Indian Territory I saw a tree some ten feet high which the owner told me had the year before borne about a bushel of fruit, and which then had on it several large specimens. The Japan Persimmon is unlike our native species in that its flowers are perfect—that is, have both stamens and pistils in one flower—while ours has the two sexes on different trees. Apples seem to do moderately well in a great many places in the northern part of the State, but late keepers are very scarce. The Ben Davis seems to be one of the best for that section. As the center of the State is approached the climate becomes too warm, and apple culture has to be abandoned. Dallas is the name of a new blackberry that originated near the city of that name, and is grown quite largely and very successfully in that locality.

The Olive is growing at Mr. Nat. Stephens's place, at Forney, Kaufman County, and so far with every prospect of success. I had the pleasure of seeing the Post Oak Grape, or, as it is scientifically known, *Vitis Lincicumii*, growing and bearing in its native habitat. By many this species is confounded with *V. æstivalis*, but it is now generally conceded to be distinct. It is found growing in the same localities and soils as the Post Oak, and hence its name. It is confined to high and often rocky lands, but develops the finest fruit along little ravines near small rivulets. It is never, or very rarely, seen in the low bottom-lands. Its roots are very deep, and a severe drought has little effect on its growth. The territory in which it is found comprises Northeastern Texas, Eastern Indian Territory, Western Arkansas, Southwestern Missouri, and a small portion of Southeastern Kansas. On the higher lands of this region it spreads its thrifty branches and runs over low bushes, and is, sometimes found climbing to the tops of trees. This latter, however, is rather rare, as its growth is generally low. It is often seen growing in open forests where there is grass enough to feed the annual fires, and these frequently kill the vines to the ground, but their hardy nature enables them to survive and throw out numerous sprouts from the base, much like a stool of the Black-cap Raspberry. The fruit varies in color from deep black to pale red, and even green. Sometimes the clusters are very long and loose, and others are as compact as the Elvira. The berries also vary in size and shape, but are usually about like the Clinton. Their taste is often rather sour and astringent, but occasionally a variety is found of mild and delicate flavor. Some that I gathered were about equal to the Concord, and many of them better than the Clinton. One very promising feature of their flavor is the entire freedom from the foxiness that is so objectionable in all the varieties of *V. labrusca*. The season of ripening of the different varieties is so varied, that at least six weeks elapse between the earliest and latest.

Strange as it may seem, it is true that until within the last few years no one of the great army of horticultural experimenters has attempted to cultivate or improve the varieties of this species, and it seems the more particularly strange when we consider that of all the known species of the *Vitis* family this is the most productive of wild varieties of high quality. To this any one who knows our native grapes and has traveled through the forests within the territory named will bear me witness. But now we have a gentleman of the most eminent ability, both scientific and practical, in the person of Prof. T. V. Munson, who has taken the matter in hand. He has not only transplanted to his vineyards vines of the best wild varieties he could find, but he has with wondrous care cross-fertilized these with some of our finest cultivated varieties, and has grown seedlings from this fruit. I might say that Professor Munson is raising a new race of grapes, and with the most promising results already. He has several seedlings of excellent quality, and has hundreds more that are yet too young to fruit. We certainly have much to expect from this race, and especially when it is in such good hands. It is really worth a trip to Texas to see Mr. Munson's rows of young seedlings and to enjoy the benefit of his intelligent explanations. We are quite likely to gain from this species and its crosses much in the way of a hardy constitution of vine, giving it ability to withstand both drought and cold. Norton's Virginia is the nearest approach to this class of grapes, it being a pure *V. æstivalis*. Mr. Hermann Jaerger, of Missouri, has also been experimenting with varieties and crosses of *Vitis Linci-*

cumii for some few years. He has grown a few varieties from cross-fertilized seed that produce fruit of good character. These two pomological experimenters are working each with an understanding of what the other is doing, and it is to be expected that something good will result.

Soon after my return to my home near Geneva, Kans., that being my headquarters at that time, I was directed to attend the meeting of the American Horticultural Society at Cleveland, Ohio, and to visit such other places in Ohio and Michigan as might be desirable in my pomological investigations.

In compliance therewith, on the 3d day of September I started for Ohio, and after spending several days at the old home of our beloved and lamented Dr. John A. Warder, examining his orchards and pomological notes, I arrived at Cleveland, where the meeting was held. As the proceedings of that meeting have been quite generally published in the papers of the country, and a full report is in process of publication by the secretary, W. H. Ragan, of Greencastle, Ind., it is not deemed desirable to give more than a few of the principal points of interest.

Mr. J. M. Smith, of Green Bay, Wis., read a paper showing the efficiency of drainage and thorough cultivation as a remedy for drought. He is one of the most successful growers of strawberries and other small fruits in the United States, and during the drought of the past summer, which was one of the severest ever known, by the application of these two principles his plants retained their vigor and bore heavily. Too much stress cannot be laid upon these two points in practical pomology. Underdraining not only carries off a surplus of water, but retains the soil in a comparatively uniform state as regards moisture; and every thoughtful farmer knows that frequent stirring tends to the same end. In other words either, or better yet both, of these methods together make a dry soil moister and a wet soil drier.

In the discussion of the strawberries it was clearly seen that the Crescent had the greater share of praise as a practical market and family berry nearly all over the United States and Canada. In the South, Neunan is one of the leading kinds. Among the newer ones, Jessie is perhaps the most promising. It is a seedling, originated by Mr. F. W. Loudon, of Janesville, Wis. The Jewell was also well spoken of by nearly all who had tried it.

Among blackberries the Snyder seemed to be as well spoken of as any, its extreme hardiness (for the colder Western and Northwestern States especially), productiveness, and good quality offsetting its small size. Kittatinny holds a good place yet in public esteem. Among the newer kinds, Minnewaska, from Mr. A. J. Caywood, of New York, is likely to receive favorable notice. It is large and very robust in growth, even more so than Kittatinny, and much the same in fruit. Lucretia Dewberry is very early, large size, and productive, but it is said to be very difficult to pick because of its trailing habit and ugly prickles. It is also not of first quality when compared with good blackberries.

In the face of all the discouragements from Mildew and Black-Rot, the grape elicited much discussion. Leaving all the older sorts, because of their generally well-known characters, both good and bad, I will mention a few of the newer ones. Niagara and Empire State seem to be making a rather even race for the leadership among white grapes. Indeed, they seem, from what I have heard others say and

from what I have seen and know from observation, to be an advance upon the varieties heretofore grown. Worden is likely to supplant the Concord, as it is several days earlier, a little larger and better in quality, and in all other respects fully equal to that old standard variety. Ulster is a red grape of high quality, vigorous in vine, and a remarkable keeper. Poughkeepsie is also a red grape, the product of a cross between Iona and Delaware, and of fine flavor. It is, however, a little below medium size, and is not a strong grower. These last two seedlings were originated by Mr. A. J. Caywood, of Marlborough, N. Y.

The two pears that seemed to engage the special attention of the members were Keifer and Le Conte. Specimens upon the tables showed both these varieties to be large and handsome, and although their flavor was not equal to such standards as Sheldon and Bartlett, yet they were passably good. Those grown in the Southern States have much less of that peculiar and unpleasant astringency so common to the Chinese Sand Pears than is found in those from the north. In the exhibit from North Carolina were many fine specimens of the Le Conte that would challenge the admiration of any one. The discussions elicited the fact that neither of these is exempt from blight, as some have claimed.

Apples were of course shown in profusion, though there were no new varieties of peculiar interest. It was a surprise to a great many to see such fine displays of apples from the South as were shown by Mississippi and North Carolina. It has been usually thought that in Mississippi especially, apples could not be grown profitably, but this is certainly a mistake. Perhaps in a commercial sense it may be true, but for home use they can and should be grown. The higher lands of Western North Carolina and Virginia are especially well adapted to apple culture. There they may be grown commercially quite as well as anywhere in the United States. The Yellow Newtown, which is a precarious bearer in very many sections, does remarkably well on these elevated lands.

After the meeting had closed I had the pleasure of visiting the famous vineyards about Euclid, some 10 miles east of the city of Cleveland. No locality surpasses this for the production of Catawba grapes. The vineyards are planted principally on the slopes facing Lake Erie, but many are on the plateau between the foot of the hills and the beach, and on the table-lands above and back of the steeper slopes. From the summit of the hill above the village of Euclid could be seen fully three thousand acres of vineyards. The greater part of these vineyards are set to Catawba, Concord, and Delaware. The Niagara is growing here, and I examined one vineyard in its third year that was heavily loaded with fruit. The clusters were large and well formed, and impressed me fully as well as a vineyard of the same variety that I had seen near Fort Worth, Tex. This is perhaps the best variety of white grapes to plant for the States east of the Rocky Mountains, unless it be the Empire State.

The Michigan State fair, held at Jackson, was next visited. A large and very fine display of fruit was exhibited. The apple can be seen in its glory in this State, but the show of plums was particularly fine. They were mostly from the northwestern counties of the southern peninsula. Many of them were equal in size to those grown in California, and of the highest quality. Peaches, pears, and quinces were also shown that were both beautiful and delicious. There were several new varieties of grapes on exhibition. Notable among these was

Woodruff. It is of the species *V. labrusca*, and somewhat resembles Dracut Amber, but is much better in quality. Indeed it is very finely flavored and is of a clear amber color. The berry is large and the bunch medium sized and compact.

Mr. C. P. Chidester, of Belleview, showed several seedlings, and among them one of very superior quality, that looked much like Catawba and tasted like Brighton. It was named Lyon by the examining committee in honor of Mr. T. T. Lyon, the noted pomologist of Michigan. It is well worthy of further trial.

I visited several places of interest at Grand Rapids. One mile north of the city, on a high hill, I saw one of the finest vineyards that it has ever been my pleasure to see anywhere. It was in a high state of tilth, and the vines were loaded with fruit. Worden was the most profitable variety grown there. The fruit of that variety was mostly marketed, but some of the vines were yet loaded, and afforded opportunity to see how it did. Certainly it is all that the Concord can claim to be in every respect, and more in some particulars. The Concord in this vineyard was barely fit to market when I was there (September 21), but the Worden was nearly gone. Besides, the fruit was larger and better flavored.

A peach orchard covered the crest and slopes towards all points of the compass. On the south and west sides and on the crest the trees were either dead or injured by the winter of 1885-'86. The greatest damage was on the southern slope. On the northern and eastern slopes there was a heavy crop of fruit then on the trees.

At the fair then in progress at Grand Rapids I saw a grand display of quinces, mostly from the western counties of the State. Plums were also shown equally as fine as those seen at Jackson. These were mostly from the region of Traverse Bay, to the northward, and near Mackinaw Straits. The apples, peaches, and pears were also large and luscious. Making my way northwestward about 100 miles farther, I spent some days in examining the fruits of the Grand Traverse region.

Here quite a different state of things was manifest. The condition of all fruits was much later than that in the regions South. The plum crop was about gone at that time, September 24, but I could see from the bent and broken branches something of their departed glory, and here and there was to be found a belated specimen. I took much pains to determine, if possible, the cause of their success. I examined the orchards and questioned the owners. Some had used the jarring process to catch the curculio. Others had sprayed the trees with Paris green and some with London purple. Occasionally one had tried all these plans. Many had done nothing to prevent the ravages of this little pestiferous insect. In all cases, including those in which no remedy had been tried, a crop of plums had been gathered. I came to the conclusion that nature¹ had by some means cut short the numbers of this insect, and an abundance of fruit had been the result. But I was assured by many that this was an unusual circumstance, for nearly every year they have suffered a considerable diminution of the yield by reason of the curculio. All the orchard fruits seemed to be flourishing. Apple trees were bearing a full crop. Near Manistee, and in the region of Bear Lake, Frankfort, Benzonia, and Traverse City this fruit was comparatively free from insect or fungous affections. Some varieties, such as Fameuse or Snow and Swarr, were troubled with scab. But the lighter fungous disease, that give the apples a dirty appearance in the South and West, was not

apparent. It is too cool for its natural development. The apples of this region are especially good keepers. The very late and mild falls enable them to develop size and color and yet not hasten their ripening. Indeed, the climatic conditions of this section of our country are very peculiar, and I may say very favorable for many kinds of fruit. I gathered Carolina June, and Primate apples from the trees in the first week of October near Benzonia, and Grimes Golden and Colvert were quite eatable at the same time. The Baldwin does finely, but the Ben Davis and Winesap are out of their latitude. Pears grow luxuriantly. Some Sheldon trees that I saw were loaded with specimens that would grace any exhibition table. Peaches also do quite well. It seemed strange to gather peaches within fifty miles of Mackinaw, when six hundred miles south of there the cold of the previous winter had killed every peach-bud. The secret of the whole matter is the influence of the great lakes in tempering the atmosphere in winter, so that it is not so cold nor so dry as it is for many miles south of such influence. Grapes were just beginning to ripen when I left, about October 10. However, I saw some very fine little vineyards of Delaware and Agawam, in which there was no sign of mildew, black-rot, or any disease. The vines and fruit looked as clean and bright as if they had been washed every day. However, it is rather too far north for successful grape culture, except in very peculiar situations on southern and eastern slopes.

Before returning to my headquarters, I proceeded, under directions, to Springdale, Ark., where was being held a fair of the Arkansas State Horticultural Society. This place is in the northwestern portion of the State, and in the midst of the best apple-growing counties.

In size and beauty the apples of this section can rarely be equaled, because the soil and climate are well adapted to their growth; and much attention is now being given to this branch of pomology by the farmers. One thing that interested me particularly was the large number of seedling apples of high quality. I think fully fifty varieties were shown that were entirely new. Some of these are worthy of further trial by experimenters, and a very few of these are described and illustrated in this report, as well as some already somewhat known.

A meeting of the State Horticultural Association of Pennsylvania was held January 19 and 20, 1887, at which the Department was represented by the Pomologist. At that meeting there was a goodly number of the horticulturists of this great State, and the tables were covered with fruits. Notable among the apples shown was York Imperial, which is a native seedling of the vicinity of York, in that State. Although not a new variety, it is not nearly so well known as it should be. The fruit is of a bright red color and excellent flavor and keeping qualities. It also succeeds remarkably well both East and West as a profitable orchard variety. In Kansas and Missouri I have seen it doing remarkably well, and it is worthy of general cultivation. Its only defect is, that it is often of an irregular, or rather a diagonally inclined form, which is found objectionable when paring it on a machine.

The subject of "Nut Culture," and especially the chestnut, was discussed with much interest. The rough and worn-out fields of this State seem peculiarly suitable for nut trees. There are a few improved kinds of chestnuts, which are far more desirable as to size of the nut and early bearing than the common native varieties. Mr. H.

M. Engle, of Marietta, Pa., has one of special merit. It is much regretted that the pressing character of duties at Washington at this time did not permit a more extended visit and to different parts of the State.

On the 26th and 27th of January the Western New York Horticultural Society held a winter session, at which this division was represented.

This is one of the oldest and most active horticultural societies in the United States. The membership is large, and the attendance at this time was quite full. The display of fruit was especially fine. Messrs. Elwanger & Barry, of Rochester, were the principal exhibitors, and their show of pears was very choice. Such specimens of Anjou are rarely seen, even from California, and their flavor was of the very highest quality.

The show of apples was not large, but the varieties were mostly new and rare. Sutton Beauty and Belle de Boskoop were among them, and seemed to be in good keeping order. The Niagara grape was in excellent condition. This seems to be a grape of good keeping qualities. The Empire State was there, too, and its flavor even at that date (January 27) was very good. A new plum was shown by Mr. S. D. Willard, called the Stanton, which is a freestone and of most superior quality. It is worthy of further trial. The Jessie strawberry was discussed at length, and generally thought to be a variety of much promise.

NEW FRUITS.

The following rules are copied from the proceedings of the American Pomological Society and are most earnestly indorsed and urged upon the people as desirable to put in practice:

SECTION 1.—NAMING AND DESCRIBING NEW FRUITS.

Rule 1.—The originator or introducer (in the order named) has the prior right to bestow a name upon a new or unnamed fruit.

Rule 2.—The society reserves the right, in case of long, inappropriate, or otherwise objectionable names, to shorten, modify, or wholly change the same when they shall occur in its discussions or reports, and also to recommend such changes for general adoption.

Rule 3.—The names of fruits should preferably express, as far as practicable, by a single word, the characteristics of the variety, the name of the originator, or the place of its origin. Under no ordinary circumstances should more than a single word be employed.

Rule 4.—Should the question of priority arise between different names for the same variety of fruit, other circumstances being equal the name first publicly bestowed will be given precedence.

Rule 5.—To entitle a new fruit to the award or commendation of the society, it must possess (at least for the locality for which it is recommended) some valuable or desirable quality or combination of qualities in a higher degree than any previously known variety of its class and season.

Rule 6.—A variety of fruit having been once exhibited, examined, and reported upon as a new fruit by a committee of the society, will not thereafter be recognized as such so far as subsequent reports are concerned.

THE ORANGE.

Bahia. Synonyms: *Washington Navel* and *Riverside Navel*.

This orange is attracting the attention of the growers in Florida and California, and is being sought after by their customers in the Northern States. It was first brought to this country by importation from Bahia, in Brazil, in 1870, by Mr. William Saunders, of this

Department. There were twelve trees in this first and only importation, which were secured for him by a lady then traveling in Brazil. It was sent out by this Department under the name Bahia, but was by some changed to Washington Navel. Two of the first trees to bear, aside from the orange house of this Department, were on the grounds of Mrs. L. C. Tibbetts, at Riverside, Cal., and as buds were taken from these trees it got the name of Riverside Navel.

The accompanying colored illustrations were made from a specimen grown by Mr. E. H. Hart, of Federal Point, Fla., and are exactly life size. It is rarely that even one seed is found in a specimen, and the flavor of the fruit is par excellence. By some it is said to be a rather shy bearer. The investigation of this subject is now occupying my attention, and it is hoped that by another year we may have the matter quite conclusively settled. There is also such a wide diversity of opinion as to whether the name Bahia or Washington Navel should supersede, and it may be found best to accept the latter.

THE PEAR.

Le Conte.

This pear is now attracting much attention, especially in the South. In answer to a letter of mine, making inquiry as to the early history of this variety, the following was received from Mr. John L. Harden, of Walthourville, Ga.:

Maj. John Le Conte, of New York City (and afterwards of Philadelphia), in the year 1850 had a number of fruit trees and other plants put up for his niece (Mrs. J. L. C. Harden, my mother), of Liberty County, Georgia, at a nursery in New York or Philadelphia (most probably New York), and among them was a rooted cutting of what was marked "Chinese Sand Pear." Major Le Conte was informed by the proprietor of the nursery that the pear was only fit for preserving, as it never matured in this country. Contrary, however, to expectation, it matured in Liberty County, and proved to be a fine and productive pear. The original tree is now owned by my mother's heirs, and is still vigorous, although not cultivated in any way, and produces from 10 to 20 bushels each year.

So far as I know, there is no disease to which it is liable. I have known one of my own taken from the mother tree that died partially, but I allowed it to remain the whole season through, pruned off the dead branches in the fall of the year, and it is still living and is vigorous.

Size, large; shape, roundish, conical, tapering towards both ends; surface, smooth, yellow, no russet, no blush; dots, very numerous, small; basin, narrow and deep; eye, small, open, segments often drop off; apex, very slightly sunken; stem, medium length and stout; core, large, closed; seeds, large, light colored; flesh, very tender, juicy, rots at core; flavor, not rich, but pleasant, somewhat astringent; quality, medium, not equal to Flemish Beauty.

THE APPLE.

Arkansas Black.

This is a variety that has been making a favorable impression both in the region in which it is grown and upon pomologists who have investigated its qualities. Although I have not seen the tree, and do not know of it from personal experience, it is reported on good authority to be productive. There is scarcely an apple that is more brilliantly colored. The specimen here described and illustrated was grown in 1886 by H. B. Woolsey, of Bentonville, Ark.

Size, medium, $2\frac{1}{2}$ to 3 inches; shape, round or slightly conical, reg-

ular; surface, smooth, glossy, yellow where not covered with deep crimson, almost black; no stripes visible; dots, small, light colored, shown through the dark over-color; basin, very shallow; eye, small, closed; cavity, rather shallow, narrow, russeted; stem, medium, slender; core, inclined to be loose or open, clasping the calyx tube; seeds, small, short, plump, light brown; flesh, very yellow, firm, fine grained, juicy; flavor, subacid, pleasant, rich; quality, very good; season, December to March in Arkansas.

Elkhorn.

The Elkhorn is an apple which originated on the old battle-ground of Pea Ridge, Arkansas, near Elkhorn tavern, and was given the name from that fact. It was brought to notice by G. F. Kennan of Brightwater, Ark., in the fall of 1886, and promises well.

Size, large to very large, often 4 inches in diameter; shape, flat, not conical, regular; surface, yellowish, well covered with rather dull mixed red and darker stripes; handsome but not brilliant; dots, numerous, very large, light gray, on distinct and lighter bases; basin, large, closed or nearly so; cavity, wide, deep, heavily russeted; stem, very short, slender; core, large, clasping, open; seeds, large, flat, dark colored; flesh, yellowish, firm, a little coarse, juicy; flavor, subacid, mild, pleasant, rich; quality, very good; season, December to spring in Arkansas.

Crawford.

This is an apple that is worthy of trial. It originated with James Crawford, of Boonesborough, Ark., and the specimen from which I made the accompanying drawing was from him.

Size, large, $3\frac{1}{2}$ to 4 inches in diameter; shape, flat, very slightly conical, very regular in its outlines; surface, smooth, yellow, often beautifully blushed; dots, very prominent, numerous, large, light gray; basin, very deep, large, regular; eye, large, open; cavity, deep, wide, regular, heavily russeted; stem, medium length, slender; core, very small, compact, outer line indistinctly marked; seeds, short, plump, light brown; flesh, yellow, tender, fine grained, juicy; flavor, subacid, rich; quality, very good; season, December to March or later in Arkansas.

Siloam.

This is another of the new varieties that has been brought to notice in Arkansas. It originated on the farm of Mr. James Carl, of Siloam Springs, and is quite likely to prove a winter apple of excellent keeping qualities.

Size, medium, $2\frac{1}{2}$ to 3 inches; shape, flat, regular, almost like Rawle's Genet; surface, smooth, yellow ground about half covered with rather dull red stripes and splashes; dots, numerous, small, light gray; basin, shallow, regular; eye, small, closed; cavity, shallow russeted; stem, very short; core, wide, nearly closed, clasping the calyx tube; seeds, small, plump, dark; flesh, yellow, fine grained juicy; flavor, subacid, rich; quality, almost best; season, December to spring in Arkansas.

Shannon.

There has been so much said lately about this variety that a description is here given, although it is not new. For many years

there has been some confusion of this variety with one known as the Ohio Pippin. But after carefully studying the specimens that I have received under both names, and examining the trees, I think they are distinct. The specimen from which I made the accompanying illustration and written description was grown by Mr. Garrett Williams, of Hinesville, Ark., in 1886. It was a fair average specimen in all respects, and came from near where the variety originated in that State.

Size, large to very large, 3 to 4 inches; shape, flat, conical, regular, or appearing a little elliptical when viewed from the end; surface, very smooth, yellow, occasionally faintly blushed, with a dull overcast of whitish blotches and streaks; dots, small, indistinct, white or light gray; basin, shallow, waved a little; eye, large to medium, open; cavity, shallow, regular, russeted; stem, very short, often fleshy; core, wide, open, clasping the calyx tube; seeds, short, plump, dark; flesh, yellow, rather coarse, juicy; flavor, mild, subacid, not rich; quality, good only; season, October to February in Arkansas.

Pilot.

This new seedling has been brought to notice in Albemarle County, Virginia. It grew up where some rotten Yellow Newton apples had been thrown out, and is supposed to be a seedling of that variety. As this occurred on a farm near the base of Pilot Mountain, it has been given the name Pilot. I am much pleased with its character, but it is yet to be proved valuable in other localities. It has been planted in some of the orchards in that locality, but seems to have the fault of being a very tardy bearer. Some trees have not fruited until over fifteen years old. This may prove a bad fault, but it is worthy of further trial.

Size, medium to large, $3\frac{1}{2}$ inches; shape, round, regular; surface, smooth, the yellow under-color is almost hidden by dull mixed red and brighter splashes, over which is a grayish coating; dots, numerous, large, gray, often star-shaped; basin, deep, regular; eye, rather small, closed; cavity, shallow, narrow, slightly russeted; stem, short; core, closed or slightly open; seeds, plump, light brown; flesh, yellow, fine grained, firm, juicy; flavor, mild subacid, rich, aromatic; quality, very good or best; season, January to spring in Virginia.

Burlington.

One of the most richly colored and flavored apples that I have met with is a seedling of Grimes's Golden, originated by H. R. Teller (now deceased), of Albia, Iowa.

Size, small to medium; shape, round or truncate, regular; surface, rough, mixed red and russet on yellow ground; dots, small, gray, on large russet bases, especially those near the stem; basin, deep, folded, and very uneven; eye, medium, very widely open, segments short; cavity, narrow, shallow, much russeted; stem, very long and slender; core, small, narrow, closed, almost meeting the calyx tube; seeds, rather few, small, but very full and plump, light colored; flesh, very yellow, very fine grained, heavy but tender, juicy when fully ripe; flavor, very mild subacid, almost sweet, rich, aromatic; quality, best; season, December to spring in Iowa.

Northwestern Greening.

This apple is of Wisconsin origin, where it is being sought after on account of its fine appearance and reputed hardiness, although the latter is doubted by some who have grown it. However, it is worthy of trial.

Size, large, 3 to 3½ inches; shape, nearly round, very regular; surface, very smooth, often green, but yellow when fully ripe; resembles Lowell; dots, scattering, mostly dark, with some very light; basin, wide, shallow, a little folded or gathered; eye, rather large, open; cavity, medium, regular, a little russet in bottom; stem, medium, rather slender; core, large, nearly closed; seeds, small, plump, grayish brown; flesh, yellow, rather coarse, juicy; flavor, subacid; quality, good; season, December to February in Wisconsin.

Wolf River.

This variety will be remembered by many as one which is being well spoken of for the Northern part of the country. It originated in Waupaca County, Wisconsin, and was brought to notice by W. A. Springer, of Fremont, in that State. It is almost identical with Alexander in nearly all respects, and I have sometimes thought it is that variety. But the origin of Wolf River as a seedling is quite well established, the fruit seems to keep later, and the trees seem to have a different look, and prove hardier. It has been grown in several other States, where it has almost universally proven valuable. I made this drawing from a specimen received from Mr. Springer.

Size, large to very large, 3 to 4 inches; shape, flat, conical, regular; surface, smooth, mixed and splashed bright red on whitish-yellow ground, very showy; dots, scattering, light gray, large; basin, shallow, small; eye, medium, open, segments reflexed; cavity, deep, wide, very much russeted; stem, medium to short, stout; core, very large, wide, open; seeds, numerous, small, short, plump, dark colored; flesh, yellowish-white, tender, coarse, gets dry as soon as ripe; flavor, subacid, not rich; quality, medium only; season, November to February in Wisconsin.

Waupaca.

This is another variety that originated in Waupaca County, Wisconsin, whence it received its name. Mr. William A. Springer is the introducer, and my specimens are from the original tree on the farm of Elijah Wrightman. It is said to be very hardy, and is recommended for trial in the North.

Size, medium, 3 inches; shape, flat, a little conical, irregular, angular; surface, smooth, mixed, and diffused carmine, splashed with darker red on yellow ground; dots, small, very light, prominent; basin, narrow, not very deep, slightly waved; eye, medium size, open, segments reflexed; cavity, medium depth, wide at top, russeted; stem, medium to short; core, closed or slightly open, pyriform, meeting the calyx tube; seeds, wide, flat, short, dark brown; flesh, yellow, tender, juicy, coarse; flavor, subacid, pleasant; season, December to February in Wisconsin.

Scott's Winter.

We have here a variety that is a seedling brought to notice by Dr. T. H. Hoskins, of Newport, Vt. It originated near that place, and

seems to be esteemed in that locality and in some of the Northwestern States for the hardness of the tree and its brilliantly colored fruit. Although it is a little too tart for dessert purposes, it is liked for cooking. It is called one of our native iron-clads. My specimens were from Vermont.

Size, small, $2\frac{1}{2}$ inches; shape, flat, conical, irregular; surface, smooth, light yellow, almost hidden by bright red blotches and stripes; dots, exceedingly minute, almost undiscernible, light colored; basin, deep, narrow, waved; eye, small, closed; cavity, small, narrow, russeted; stem, medium to short, slender; core, small, nearly closed; seeds, small, plump, rather light colored; flesh, white, with sometimes a tinge of pink, tender, fine grained, juicy; flavor, subacid, quite tart, but pleasant; quality, good; season, December to spring in Vermont.

Antonovka.

This is one of the Russian varieties that is quite highly spoken of by Professor Budd and others who have grown it in Iowa and Wisconsin. Others think it is not a late keeper. My drawing is from a specimen given me by Mr. G. P. Pepper, of Wisconsin, which he obtained from Mr. A. G. Tuttle, of Baraboo, in that State.

Size, small to medium, $2\frac{1}{2}$ to 3 inches; shape, flat, slightly conical, irregular; angular; surface, rough, yellow, slightly blushed or bronzed; dots, numerous, small, light; basin, rather shallow, abrupt, narrow folded; eye, wide open, segments short; cavity, shallow, narrow, lightly or not at all russeted; stem, very short, fleshy; flesh, greenish white, rather coarse, tender; flavor, subacid, not rich; quality, rather poor; season, October to January in Wisconsin.

Boardman.

A box of very handsome apples of medium size and quality was received from Mr. E. H. Purington, of West Farmington, Me., said by him to be from a seedling of the Dean, and which I named Boardman, in honor of the secretary of the Maine Pomological Society. Below is a description of one of the specimens:

Size, small to medium, $2\frac{1}{2}$ inches; shape, flat, conical, but not pointed, regular; surface, smooth, glossy, bright mixed and splashed carmine almost entirely covering a white ground; dots, not very numerous, gray, prominent; basin, medium, abrupt, regular, slightly marked with russet or leather-cracked; eye, small, partially open; cavity, deep, narrow, furrowed, but little russeted; stem, long, slender; core, small, closed; seeds, broad, plump, sharply pointed, dark; flesh, very white, tender, fine grained, juicy; flavor, subacid, not rich; quality, good; season, December to spring in Maine.

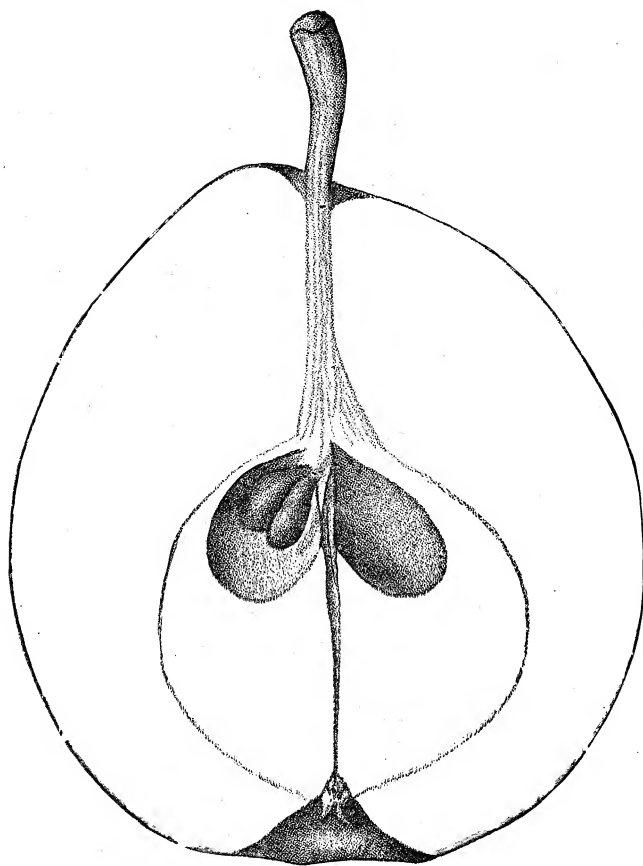
THE PLUM.

Kelsey's Japan.

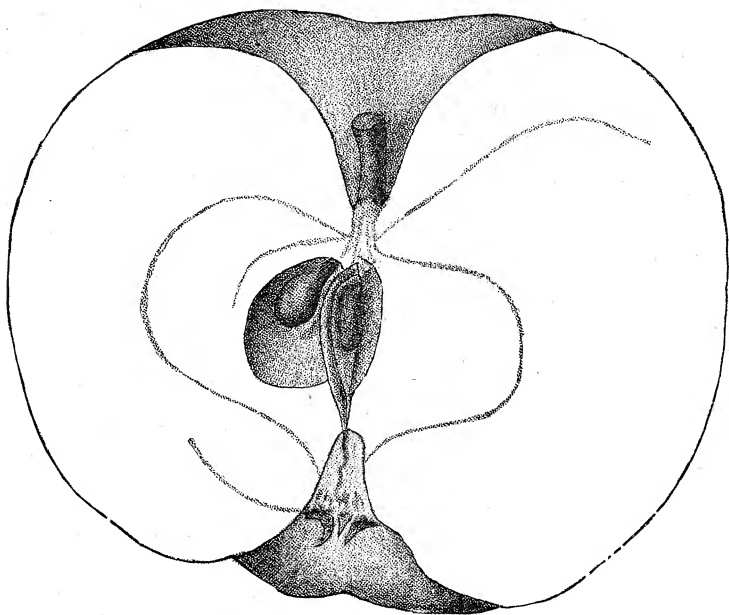
This variety is becoming quite famous as a fruit of high quality, and an abundant and early bearer. It is from 2 to $2\frac{1}{2}$ inches in diameter, and heart-shaped. Its color is rich yellow, with a tint of purple. But it is quite tender, and should not be planted north of Tennessee. Mr. Munson, of Denison, Tex., says that the hard freeze



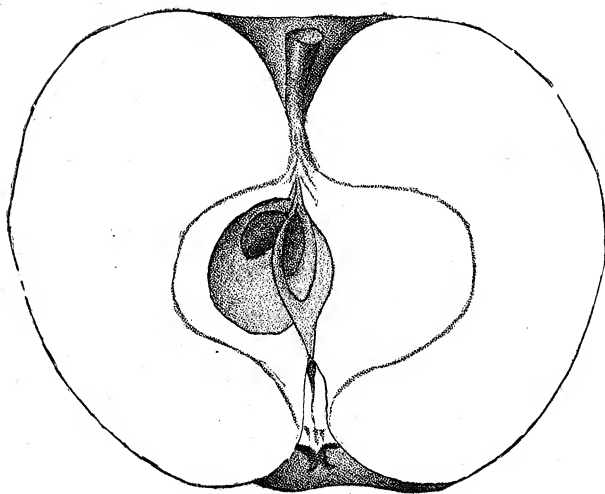
BAHIA, OR (WASHINGTON NAVEL).



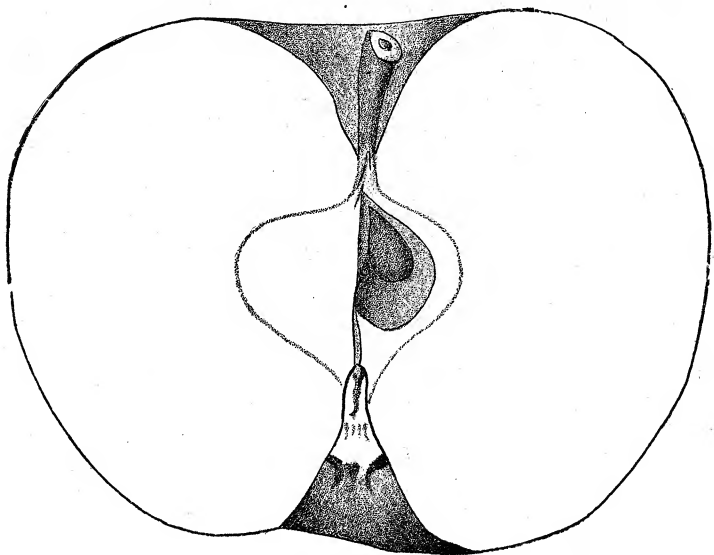
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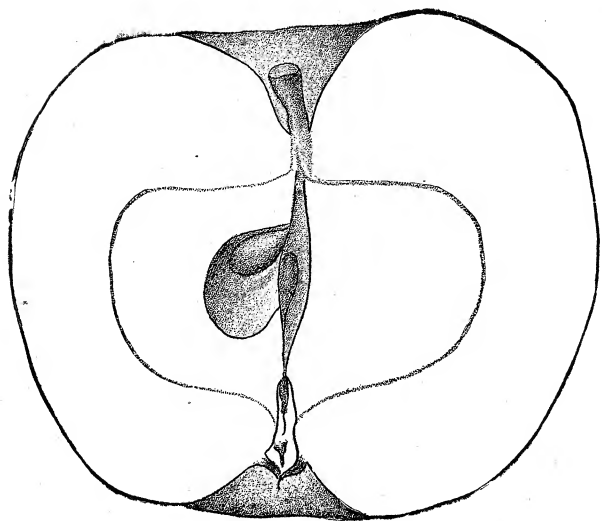
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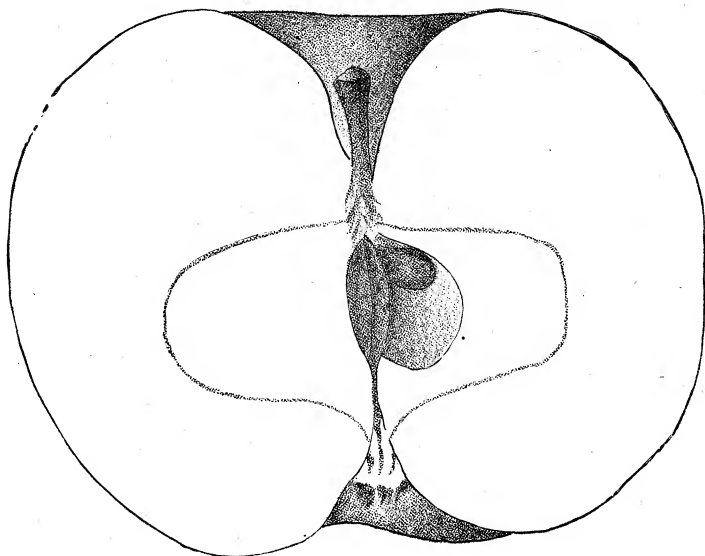
ARKANSAS BLACK.



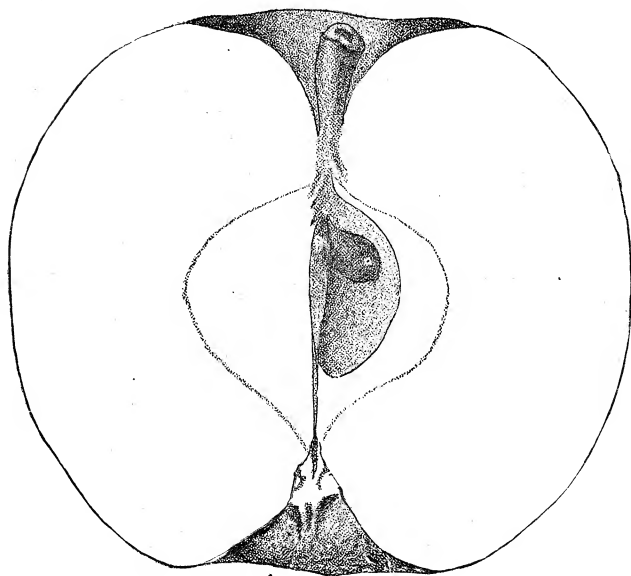
CRAWFORD.



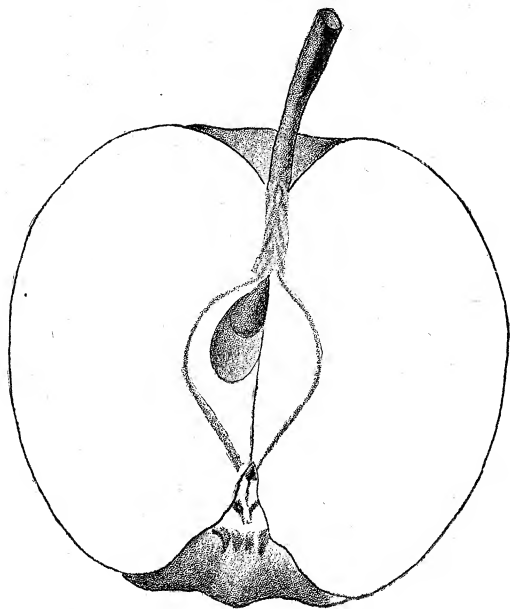
SILOAM.



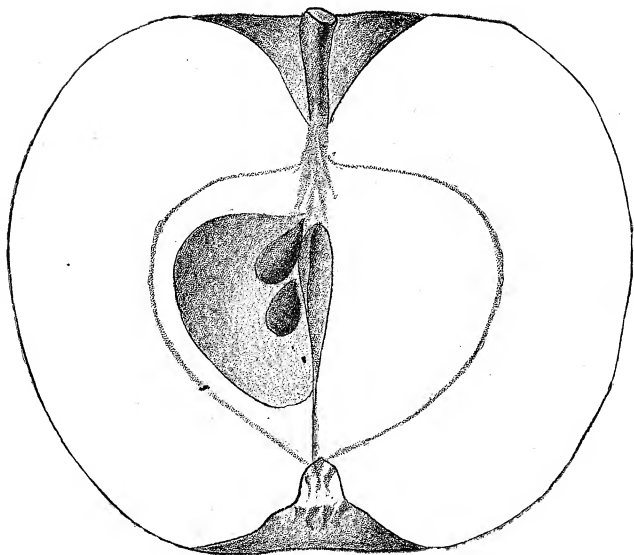
SHANNON.



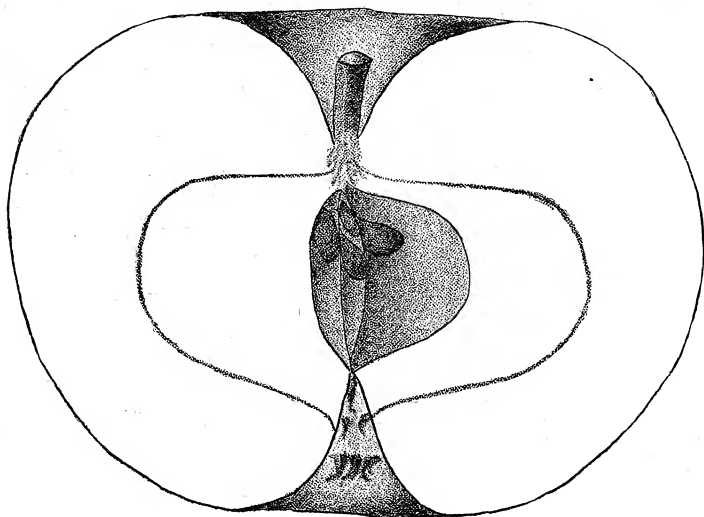
PILOT.



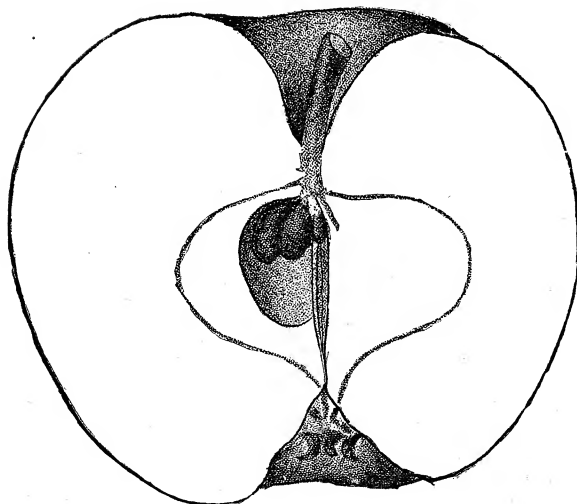
BURLINGTON.



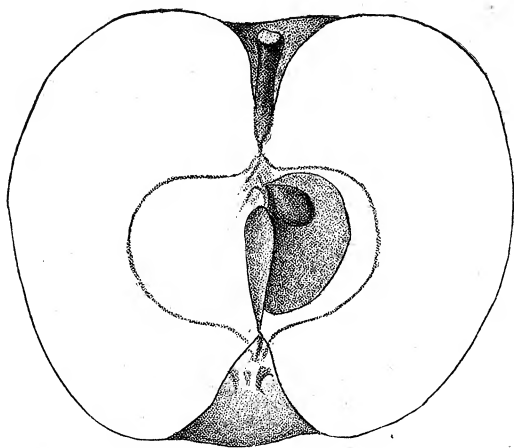
NORTHWESTERN GREENING.



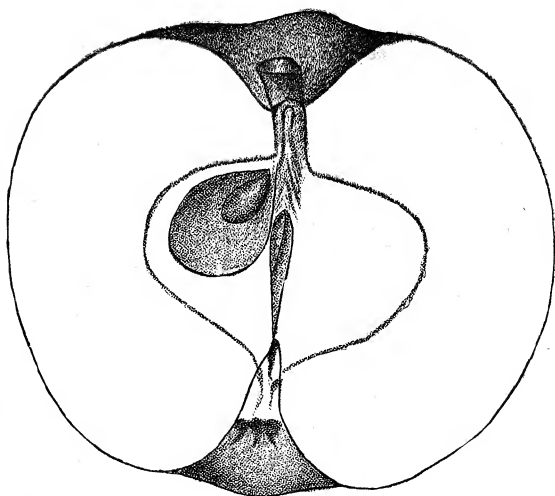
WOLF RIVER.



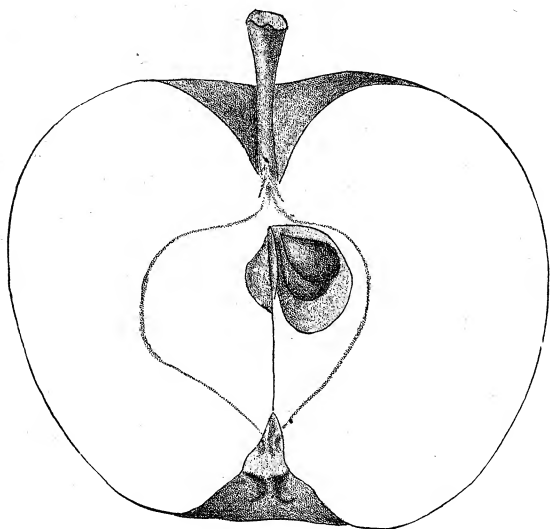
WAUPACA.



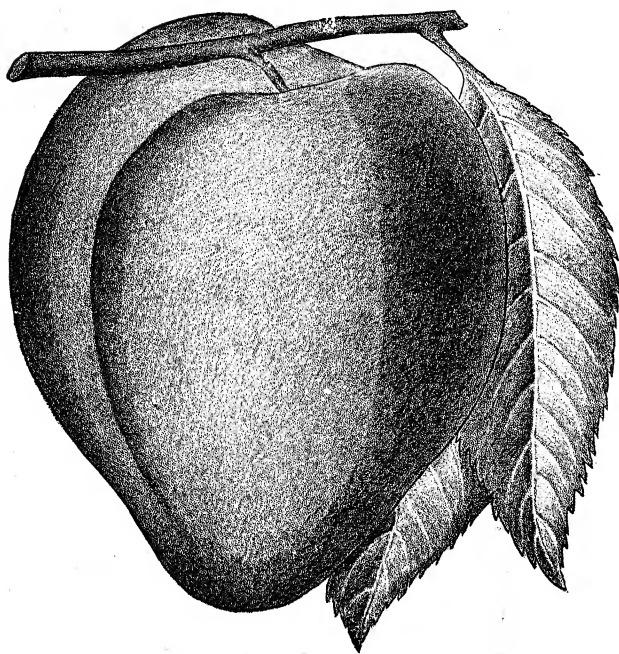
SCOTT'S WINTER.



ANTONOOKA.



BOARDMAN.



KELSEY'S JAPAN PLUM.

of January 7, 1886, killed young trees of this variety there. Mr. Kizo Tamari, of Japan, says that it is too tender to succeed in the northern part of that country. To determine the botanical name of the species to which this variety belongs has puzzled all the botanists in the United States so far as I know. There are no specimens in the herbariums of the country that give us any light, and Mr. Kizo Tamari has repeatedly stated to me that he does not think it belongs to any of the species native in Europe or America. This is a matter that is now engaging my careful attention.

Prof. E. W. Hilgard, of the University of California, under date of January 22, 1887, writes the following relative to this plum:

Your letter of inquiry regarding the antecedents of the "Kelsey Japan Plum" is duly received. I have requested Mr. E. J. Wickson, lecturer on agriculture and horticulture in this institution, to give you an account of the history of the fruit so far as known to him, and I inclose herewith his remarks thereon.

I became acquainted with the fruit in 1876, when I planted my home orchard here, for which Mr. John Kelsey, my near neighbor, supplied the trees, among them two of the Japan plums. They were at the time badly infested with the oyster-shell scale, a species that does not usually attack plums, and it was not until four or five years after planting that I succeeded in freeing the trees entirely from the pest. Since then they have done well and have borne regularly, but in their own peculiar fashion. In this climate the tree is never entirely without leaves, to-day the ends of the branches are leafy and green, and the old leaves will fall only when the new buds begin to swell. The first blossoms usually open when the leaves are about half grown and so continue for several weeks, new blossoms opening sometimes when the first have already fruit nearly an inch long. The result is that the fruit likewise ripens consecutively, a very convenient habit for family use, but rather objectionable for culture on a large scale. I hear that the same experience has been had by others on heavy soil similar to mine here, while on lighter soils it seems to be more regular in its habits.

I have not looked into its botanical relationship, nor attempted its identification with the described species of *Prunus* from Japan. Of American plums it resembles in habit very nearly the *P. chicasa*, for which in the absence of fruit it might readily be mistaken. I will look into the characters of the other alleged Japan plums mentioned by Mr. Wickson, and communicate results to you.

Mr. Edward J. Wickson, of the Agricultural College at Berkeley, Cal., makes this memorandum on "Kelsey's Japan Plum."

The fruit was first shown to me during the last week in August, 1877, by the late John Kelsey, of Berkeley, Cal. He informed me that the fruit was introduced to this State through the efforts of Mr. Hough, of Vacaville, Solano County, then deceased, in 1870; and that Mr. Hough secured the trees through Mr. Bridges, at that time United States consul in Japan. The trees cost \$10 each and Mr. Kelsey informed me that he obtained all the stock from Mr. Hough.

It is my impression that Mr. Kelsey left the trees standing in the nursery rows until fruit appeared. I am not sure how soon they first fruited, but I remember that Mr. Kelsey told me that he had expected to show the fruit sooner, but it had been taken by squirrels and intruders. The samples shown me in 1877 were picked a little short of maturity to secure them. Mr. Kelsey was assured of the value of the variety and propagated it to some extent. One thing which he conceived to prove the tree of special value was the fact that in the dry summer of 1877 his Japan plum trees were vigorous and productive, while some other varieties (the Columbia and Yellow Egg being specified) suffered severely from the drought. On a branch which Mr. Kelsey showed me there were six plums wedged tightly together on six inches length of wood. The good points which Mr. Kelsey saw in the fruit and in the tree led him to propagate it to a considerable extent.

The name "Kelsey's Japan Plum" was not given to the fruit until after Mr. Kelsey's death, and was then placed upon it by those who desired to honor his memory and to make fitting recognition of his good work in pomology. The propagation of the variety was undertaken on a large scale in 1883 by W. P. Hammon & Co., of Oakland, Cal., who obtained the stock from the heirs of Mr. Kelsey. The first large sale of trees was for the planting season of 1884. Although the stock had been in the hands of other nurserymen and growers for some years before that time, its wide distribution dates from that year.

There are a number of other 'Japan plums' in the hands of California growers.

which, however, are quite different from the 'Kelsey.' The Loquat is often called a Japan plum, but I do not intend to include that fruit. Mr. A. D. Pryal, of North Temescal, has shown at the fairs and at the meetings of the State Horticultural Society several plums of Japanese origin. They vary considerably in form, size, and color from each other, and are all more regular in outline than the Kelsey. Mr. Pryal has Japanese names for them. Mr. James Shinn, of Niles, Alameda County, also has a collection of Japanese plums, varying in color from lemon yellow to dark red, and very different in flavor; one variety I remember is of especial sweetness.

The Kelsey Japan Plum has been worked on different stocks by our nurserymen, and there is some difference of opinion as to results. Considerable plantations have been made, but I am not aware that the market value and adaptations of the fruit have yet been fully determined.

ORCHARDING IN NORTHERN NEW ENGLAND.

By T. H. HOSKINS, M. D.

By request of the Pomologist of the Department of Agriculture I am induced to give a sketch of the introduction of the culture of tree fruits into those parts of New England adjacent to the Canadian Dominion. All of this section of country has been settled during the present century, and most of it within fifty years. The first considerable advent of population into Northeastern Vermont was about the period of the war of 1812. This continued subsequently until the population in 1860 was nearly as dense as in any part of the State.

The early settlers made frequent attempts to grow the tree fruits of their native States, and not without success, until they got as far north as the mouth of Passumpsic (about 44 degrees North). Up to this point even the Baldwin can be grown, top-grafted into hardier trees, in favorable spots, but not profitably, on the commercial scale, far above the mouth of the White River (about 43 degrees North). The Baldwin, with the Rhode Island Greening and Roxbury Russet, but little hardier, are the great market apples of New England; and it was difficult to find anything to adequately replace them, though the McLellan of Connecticut, Jewett's Fine Red (Nodhead) of New Hampshire, and later the Northern Spy and the Bethel (the last a native seedling of the Connecticut Valley town of that name), were adopted as substitutes to some extent.

Following up the Passumpsic Valley nearly due north, and rising fast in altitude, the last towns in which orcharding was made even moderately successful, until within the last twenty years, were Barnet, Peacham, and Danville, in Caledonia County. Those who pushed over the divide and settled Orleans County, south of and around Lake Memphremagog, though they planted many seedling orchards, occasional trees of which maintained a struggling existence, never were able to produce marketable fruit to any appreciable extent, and until the advent of the railroad, about 1862, good eating apples were about as much of a rarity as oranges there. It may as well be noted here that the apple-producing region of the Saint Lawrence River extends not far below Montreal and only a few miles up the tributary valleys of the south bank. The altitude of Lake Memphremagog is about 800 feet above the sea, but the country around it rises from that to 1,500 feet, at which last-named height are found many of the best dairy farms. In the same latitude, 50 miles west, on Lake Champlain, less than 100 hundred feet above the sea, in a low valley extending from the Atlantic at the mouth of the Hudson to Montreal, all the tree fruits of lower New England, except the peach, are successfully grown. This difference in altitude is fully equivalent to three degrees of latitude in its effect on orchard fruits.

About the year 1864 a number of improved Siberian crab seedlings—most of them evidently a cross with the Fameuse, so extensively grown about Montreal—were introduced from Canada, and planted in Orleans, Essex, and Caledonia Counties. These were the first apple trees genuinely successful in that section. They were peddled at \$1.50 each, and were eagerly bought. One dealer claimed, I have no doubt truly, to have sold \$42,000 worth in a single year. Three years afterwards the writer planted on his farm, near Newport, on the lake, an orchard, in which were set the Tetofsky, Duchess of Oldenburgh, Red and White Astrachan and Alexander—all Russian apples, which had been grown many years in Eastern Massachusetts, from whence he had removed the previous year. To these were added many of the crab hybrids, and an apple from Montreal, some time before imported from Normandy, in France, and now known to pomology as the Peach of Montreal. Besides these, thirty other varieties, called the hardiest in Maine, New Hampshire, and Canada, were planted. Among these the only true iron-clad found was the Bethel of Vermont, though Fameuse, Ben Davis, and Sops of Wine have proved sufficiently

resistant to the climate to yield a little profit. Both Red and White Astrachan and Alexander have proved unprofitable, the first and last being not quite hardy, and the other not productive enough for profit.

None of the successful apples in the above list are keepers except Bethel, which, like Northern Spy, is very tardy in coming into full bearing. In 1870 a large number of scions from Russian trees, imported by the United States Department of Agriculture, were sent into Vermont for trial. The only persons who seem to have taken any pains to test these were Aaron Webster, of Roxbury, Vt., and the writer. Mr. Webster received by far the larger assortment, and, having a large orchard, he was able by top grafting to get fruit from most of them in a few years. My own were root-grafted, and did not come to bearing so soon. It was soon found that these Russian apples were to make most valuable additions to our list of summer and fall varieties, but among them all (I refer to those sent to Vermont) only two genuine all-winter apples were found. These are the Borsdorf (341) and Little Seedling (410). The chief merit of the latter is in its remarkable keeping quality, so rare among the Russians. It will "keep until apples come again" with little care, and being quite iron-clad, ought to be utilized as a mother-tree to grow crossed seedlings from. The Borsdorf, though only of medium size with good culture, is of nice appearance and excellent quality. If it had not been for the advent of the Wealthy it would have received much more attention than it has.

The purpose of this paper is not to give a detailed description of hardy fruits, but merely to outline the history of their introduction, and of their successful culture, in Northern New England. Though the writer came to Vermont from Massachusetts, he is a native of Maine, and as soon as he had solved the problem of apple culture for Northern Vermont, his thoughts turned to the vast and fertile Aroostook region of that State, covering an arable territory as large as the whole of Vermont. Even the southern boundary of that section is 100 miles north of the north line of Vermont, but its much less altitude (scarcely anywhere more than 800 feet above the sea) and its proximity to the ocean prevent the winter's cold from being greater there than here. A nurseryman in Woodstock, New Brunswick, had distributed some of the early imported Russian apples and the Fameuse in Southern Aroostook, as well as some of the hybrid Siberians, about 1868, and these were the only apples grown there when, in 1872, I began to send scions to the addresses of Aroostook farmers whom I found mentioned by the Maine agricultural press as attempting to grow apples. This I have continued, and twice, at the invitation of the secretary of the Maine Board of Agriculture, I have visited Aroostook and taken part in the discussions in the board's meetings on the subject of orchard culture. In this way I have become somewhat acquainted with the resources of this, by far the finest, as well as the most extensive, agricultural region of New England. For dairy, stock, and fruit farming Aroostook is inferior to Western New York and Ohio only in its colder winter temperature. It is now being settled with considerable rapidity, and everywhere the planting of orchards of iron-clad apples keeps pace with the opening of farms.

New Hampshire tapers northward as Vermont tapers southward in territory, only more sharply; yet its northern county, Coos, possesses a large amount of excellent farming land, much of which is already improved. Here, too, the iron-clad apples are being extensively planted, and already the home market is being supplied, as in Northern Vermont, with home-grown apples. The upper Connecticut Valley is admirably adapted to orcharding, and will in the end contribute largely to the fruit supply of the large towns and villages of that State.

The Wealthy apple, originated in Minnesota by Peter M. Gideon, is not only the leading triumph in this line, but its appearance has taught us the most hopeful line of future advance in growing seedlings for the cold North. It has shown the rapidity of the improvable of the Siberian and Russian class of apples under crossing and with careful selection of seedlings. Although in the Upper Mississippi region of Northern Iowa and Minnesota the heat of autumn makes the Wealthy only a late fall or early winter apple (as Southern New Jersey in the same way transforms New England's long-keeping Baldwin), it is found in Northern New England that with early gathering and proper handling it keeps and preserves its quality until the last of March where it is grown. But it will not do this when exposed to the contingencies of transportation; and for shipment, wherever grown, it cannot be classed with the long keepers. The only genuine long-keeping iron-clad, possessing the necessary productiveness, along with other qualities of a shipping apple, which I am yet acquainted with, is a native seedling of this town, scions of which I have distributed widely under the name of Scott's Winter. But the future leading winter market apple of the cold North must surpass Scott's Winter in size and in dessert quality, and I am anxiously looking to Mr. Gideon's extensive seedling orchards, produced under his system of crossing, for the desired apple. He has already announced a seedling of the Wealthy almost duplicating its other qualities, with a longer season,

which he calls the "Peter," and I believe he, or some other Northwestern experimenter, proceeding on the same principle, will soon give us a Northern equal (or superior) of the Baldwin. This is alone needed to give the cold North the lead in orcharding, for it is a well-ascertained fact that the long days of our Northern summers are in the highest degree favorable to that combination of high color, delicate texture, and fine aroma which sells an apple at sight in every market of the world. Already the Wealthy is being shipped to England from Canada with profit, and a long-keeping Wealthy is all that is now required to become the leading commercial apple of America.

NEWPORT, VT., *January 14, 1887.*

ACKNOWLEDGMENTS.

It is a pleasure to acknowledge the kind and helpful spirit which has been manifested by every one with whom I have had to do in the work of practical investigation and in the preparation of this report. Among these may be mentioned Prof. T. V. Munson, Mr. and Mrs. J. R. Johnson and J. R. Howell, of Texas; Profs. E. Hilgard and George Husmann, of California; Prof. W. H. Ragan, of Indiana; Mr. F. W. Loudon and George P. Pfeffer, of Wisconsin; George W. Campbell and W. N. Irwin, of Ohio; G. F. Kennan, of Arkansas; E. H. Hart, John Anderson, and C. B. Magruder, of Florida; E. B. Engle, of Pennsylvania; S. M. Wiggins, of Louisiana; T. H. Hoskins, of Vermont; C. W. Garfield, T. T. Lyon, J. W. Van Deman, and W. G. Voorheis, of Michigan. Many others might properly be added to the list of those who have done what they could to help carry on the work.

Respectfully submitted.

H. E. VAN DEMAN,
Pomologist.

HON. NORMAN J. COLMAN,
Commissioner of Agriculture.

